



Relcom Inc.



## 8-segment redundant fieldbus power system for use with Yokogawa CENTUM 3000 R3 Control System

# F880



- ◆ Integrated redundant fieldbus power for ALF111 FOUNDATION fieldbus™ cards
- ◆ High-density, compact design
- ◆ Fully isolated
- ◆ Low power dissipation
- ◆ Passive module carrier
- ◆ On-line diagnostics option
- ◆ Redundant power & conditioning

**The F880 fieldbus power system** is designed to provide redundant power for eight FOUNDATION fieldbus™ H1 segments when used with Yokogawa ALF111 fieldbus cards. The F880 module carrier has system connectors for direct connection to two redundant pairs of fieldbus cards using Yokogawa AKB336 cables. Power for the fieldbus segments is provided by two F801 power modules operating in a redundant configuration. Failure alarms, galvanic isolation, power conditioning and segment termination are incorporated into each F801 module. In simplex applications, a single F801 module may be used. Termination of the fieldbus segments is automatically maintained when single or redundant F801 modules are fitted.

**For extreme reliability**, the module carrier has no components and only provides interconnections between the power modules and external connections. It is supported in a rigid metal frame that protects the circuit board from mechanical damage. Secure DIN-rail mounting is provided by integrated fixings.

**Each F801 module monitors** the output of the eight fieldbus segments and indicates an alarm by means of a built-in, normally closed relay if any of the segments is shorted or below the minimum output voltage threshold. Failure of either of the bulk power input supplies is also annunciated. The alarm contacts are volt-free and galvanically isolated from other

circuitry. Connections to the alarm relays are made via terminals on the F880-CA carrier. A separate alarm module is not required for this function. LED indicators also show the status of each F801 module and the eight individual segments. In normal operation, each segment LED is lit, showing that the segment is powered. If a segment is shorted, this LED is extinguished, and the module Alarm LED is lit.

**A separate physical layer diagnostics module** may be installed on the carrier to automatically collect and distribute additional diagnostic information for each of the eight fieldbus segments.

**The F801 module provides galvanic isolation** between the 24V DC input power and the fieldbus segments, as recommended by the IEC61158-2 fieldbus standard and the FIELDBUS Foundation™ FF-831 validation test for power conditioners. There is also galvanic isolation between the fieldbus segments, thereby preventing multiple segment failures due to ground faults on more than one segment. Each segment has its own fieldbus power conditioner and current limitation.

**Redundant 24V DC** (nom.) input power is connected to the F880 carrier using two-part pluggable connectors. Field wiring connections are available with either pluggable screw terminals (F880-PS) or pluggable spring clamp terminals (F880-PC).

FOUNDATION fieldbus™ is a trademark of Fieldbus Foundation™, Austin, Texas.



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## SPECIFICATION

### Location of equipment

See Approvals

### OUTPUT

#### Number of channels

Eight

#### Voltage

21.5V DC minimum

24.0V DC maximum

#### Design current

0 to 350mA per segment

#### Current limit

> 370mA

#### Minimum load

No load

#### Isolation

Fieldbus to power supply: 250V AC rms withstand

Fieldbus to fieldbus: 250V AC rms withstand

### INPUT

#### Input voltage

19.2 - 30.0V DC, reverse polarity protected

#### Current consumption

(8 segments each with 350mA output load, redundant operation)

3.5A @ 24V DC input, max.

#### Power dissipation

(8 segments each with 350mA output load, redundant operation)

2.75W / segment, typ.

### ALARMS

#### Alarm contact rating

1 A max. @ 30V DC max.

#### Alarm contact status

Normally closed

#### Alarm threshold

Segment output: 19V DC

### MECHANICAL

#### Mounting method

Integrated fixings for 'Top hat' DIN rail, 35mm x 7.5mm or 35mm x 15mm to EN50022

### ELECTRICAL CONNECTIONS

#### Host connectors

Host 1A, Host 1B, Host 2A, Host 2B via AKB336 cables to ALF111 modules

#### Field, Power & Alarm terminals

Pluggable rising cage-clamp screw terminals (- PS)

Conductor size: 0.14 to 2.5 mm<sup>2</sup>

Pluggable spring-clamp screw terminals (- PC)

Conductor size: 0.2 to 2.5 mm<sup>2</sup> - flexible or rigid

#### Chassis ground

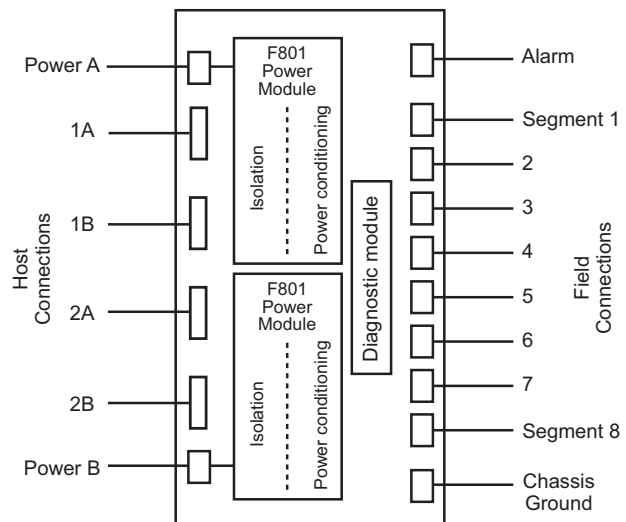
Fixed rising cage-clamp screw terminals

Conductor size: 0.14 to 2.5 mm<sup>2</sup>

#### Terminators

A single termination is provided automatically by using either 1 or 2 power modules

## F880 - Block diagram



### ENVIRONMENTAL

#### Ambient temperature

Operating	-40°C to +65°C (See note)
Storage	-40°C to +85°C

Note: This temperature range applies only when the carrier DIN rail is mounted vertically on a vertical surface.

#### Ingress protection

IP20 to BS EN60529 (Additional protection by means of enclosure)

### ELECTRICAL

#### EMC Compliance

To EN61326:1998 Electrical equipment for measurement, control and laboratory use - EMC requirements

## PHYSICAL NETWORKS

IEC61158-2  
ISA-S50.02 Part 2-1992  
FOUNDATION fieldbus™ H1  
Profibus PA

## ORDERING INFORMATION

### COMPONENTS AND ACCESSORIES

Part No	Description
F880-CA	F880 module carrier, unpopulated
F801	8-segment power module
F880-PS	F880 system, pluggable screw terminal connectors, comprising F880 carrier and two F801 modules
F880-PC	F880 system, pluggable spring clamp connectors, comprising F880 carrier and two F801 modules



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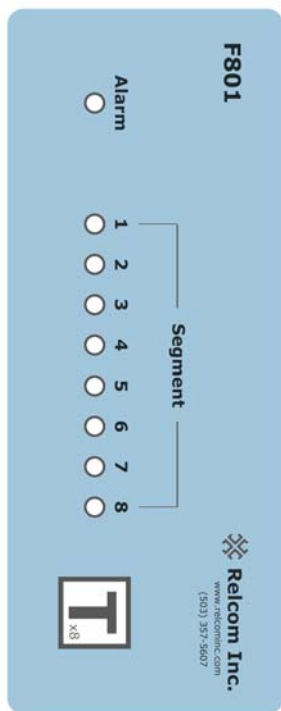
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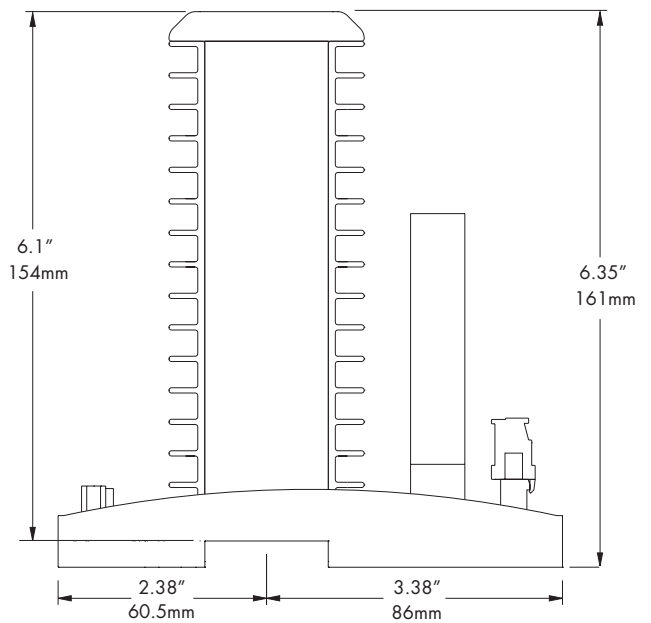
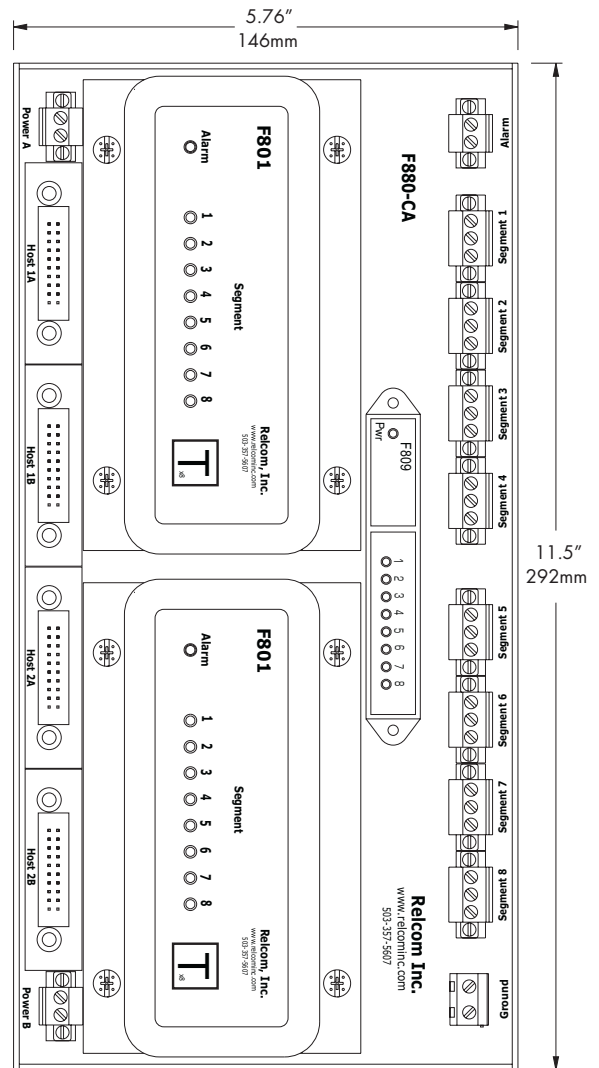
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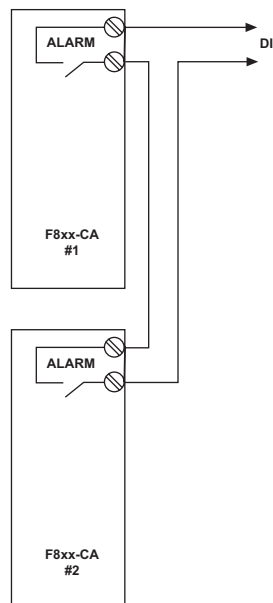
## F801 module top panel showing indicators



## Dimensions



## Linking alarm circuits



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**APPROVALS** - *for the latest certification information visit [www.mtl-inst.com/certs\\_1.nsf](http://www.mtl-inst.com/certs_1.nsf)*

Country	Authority	Standard	Certificate	Approved for	Ratings
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